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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,979	07/07/2006	Seiji Tanimoto	292041US0PCT	5988
22850 7590 08/19/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER REDDICK, MARIE L				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
08/19/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/581,979

**Applicant(s)**

TANIMOTO ET AL.

**Examiner**

MARIE REDDICK

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07/07/06;08/08/06;09/05/06;04/09/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/35108)
- Paper No(s)/Mail Date 07/07/06 & 09/05/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: See Continuation Sheet

Continuation of Attachment(s) 6). Other: (JP2001234018-Machine Translation).

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

2. The information disclosure statements filed 07/07/06 & 09/05/06 have been considered by the Examiner.

***Specification***

3. The disclosure is objected to because of the following informalities: The Tables on pages 49 & 51 should be properly labeled, either at the bottom or top of each page, so as to avoid any confusion.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. A) The recited "a resin composed of a polymer---- (A) and ---- polymer (B)" per claim 1 constitutes indefinite subject matter as per a) said phrase houses redundant and confusing subject matter, use of "an aqueous dispersion comprising a polymer----- (A) and ---

-polymer (B)" is **suggested**; b) it is not readily ascertainable as to how said objectionable terminology "composed of" further limits the claims. Note the suggestion supra.

B) The recited "wherein the vinyl alcohol based polymer (B) contains 1 to 20 mol % alpha-olefin unit" per claims 2 & 5 constitutes indefinite subject matter as per it not being readily ascertainable as to the exact entity that said contents are being based on, vinyl alcohol polymer (B), polymer (A) and polymer (B) or else.

C) The recited "weight percentage of (A) bound to (B)" per claim 1 constitutes indefinite subject matter as per it not being readily ascertainable as to the exact meaning of said phrase. Does applicant intend a graft polymer or else?

D) The recited "an average particle diameter" per claim 1 constitutes indefinite subject matter as per it not being readily ascertainable as to the exact entity that the particle size is in reference to, i.e., polymer (A), polymer (B), polymer (A) + polymer (B) or other.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
10. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 5,250,594), as evidenced by Pons et al (EP 0215518), in combination with Fujiwara et al (JP 2001234018-Machine Translation).

Hahn et al teach the preparation of aqueous polymer dispersions with polymer particles having polyol groups wherein the dispersions are obtained via emulsion polymerization and subsequently processed with auxiliary agents for utility in areas such as paper coating compositions (Abstract and col. 1, lines 8-18 & col. 4, lines 7-10 of Hahn et al) In particular, Hahn et al further teach that the aqueous polymer dispersion is prepared by emulsion polymerizing, using **known techniques**, in the presence of a free-radical initiator with or without conventional emulsifiers, (i) from 0.5 to 25 wt. %, based on the total weight of monomers, of epoxy group-containing monomers which include glycidyl (meth)acrylate and allyl glycidyl ether, (ii) 75 to 99.5 wt. %, based on total monomers, of at least one other ethylenically unsaturated monomer which includes vinyl acetate, vinyl chloride, 1,3-butadiene and further functional monomers such as (meth)acrylic acid, etc. and reacting the resulting aqueous polymer dispersion with a low molecular weight polyhydroxylated compound having a primary or

secondary amino or carboxyl group (col. 2, lines 1-68, col. 3, lines 1-63 and the Runs of Hahn et al and claims 1, 6, 7, 9 & 10).

Hahn et al differ basically from the claimed invention as per the non-express disclosure of an embodiment directed to the specific vinyl alcohol-based polymer (B). However, Fujiwara et al teach the use of a vinyl alcohol polymer, which provides excellent emulsion stability and water resistance, in an amount of from 4-20 parts by weight based on 100 parts by weight of monomers, as a dispersing agent for the emulsion polymerization of ethylenically unsaturated monomers which include vinyl esters such as vinyl acetate, (meth)acrylic acid, (meth)acrylic acid esters, styrene, vinyl halides, 1,3-dienes, etc. wherein, the vinyl alcohol-based polymer comprises alpha-olefin units such as ethylene in an amount X of 1 to 20 mol. % and 1,2-glycol bonds in an amount of (1.7-X/40) mol % and is governed by a saponification degree of greater than 60 and more preferably greater than 75 mol. % and most preferably  $\geq 98$  mol. % (Abstract and paragraphs [0001], [0006]-[0013] and the Runs of Fujiwara et al and claims 1-5). Therefore, one having ordinary skill in the art, at the time the invention was made, would have found it obvious to modify Hahn et al by using the vinyl alcohol based polymer taught by Fujiwara et al in similar such emulsion polymerizations and with a reasonable expectation of enhancing the stability and water resistance of the emulsion. It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

As to the weight ratio of (A)/(B), weight percentage of (A) bound to (B) and average particle diameter (claim 1), one having ordinary skill in the art, at the time the invention was made, would have found it obvious to modify Hahn et al/Fujiwara et al by optimizing each of the above limitations, such involving only routine experimentation, without undue experimentation and with a reasonable expectation of success, absent some evidence of unusual or unexpected results clearly commensurate in scope with the claims.

As to use of the aqueous dispersion taught by Hahn et al and modified by Fujiwara et al, as a powder (claim 8), it is known to use compositions based on similar such aqueous dispersions of epoxy-group containing addition polymers, in powder form, for the use as a coating material as evidenced by EP-0215518 and relied on by Hahn et al (col. 3, lines 21-25 of Hahn et al and the Abstract and col. 3, lines 47-49 of EP '518 ).

***Claim Rejections - 35 USC § 103***

11. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weitzel et al (US 20040097645) in combination with Fujiwara et al (JP 2001234018).

Weitzel et al teach protective colloid-stabilized polymers in the form of their aqueous dispersions or of their water-redispersible powders, useful as compositions, excellent in water resistance, for paper coating, construction adhesives, paints, etc., based on homo- or copolymers of one or more monomers which include vinyl esters, (meth)acrylic acid esters, vinyl aromatics, olefins, dienes and vinyl halides and wherein the protective colloid is contained in an amount of from 3 to 30 weight %, based on the base polymer, and includes partially hydrolyzed vinyl acetate-ethylene copolymers with an ethylene content of from 1 to 15 mole % and a degree of hydrolysis of the vinyl acetate units of



between 80 and 95 mol % and a viscosity, in a 4 % by weight aqueous solution, of from 2 to 30 mPas (Abstract and paragraphs [0002], [0010]-[0015] and [0018]-[0031] of Weitzel et al). Weitzel et al further teach that from 0.05 to 50 % by weight, based on the total weight of the base polymer, of auxiliary monomers such as epoxy-functional compounds which include glycidyl (meth)acrylate can be used in forming the stabilized vinyl-ester base polymer (paragraph [0016] of Weitzel et al and claims 1, 9 & 10). Weitzel et al further teach that to prepare the water-redispersible polymer powders, the aqueous dispersions are dried and that other conventional compounds may be added to the aqueous polymer dispersions (paragraphs [0032]-[0038] of Weitzel et al and claims 6 & 8).

Weitzel et al differ basically from the claimed invention as per as per the non-express disclosure of an embodiment directed to the specific vinyl alcohol-based polymer (B). However, Fujiwara et al teach the use of a vinyl alcohol polymer which provides excellent emulsion stability and water resistance, in an amount of from 4-20 parts by weight based on 100 parts by weight of monomers, as a dispersing agent for the emulsion polymerization of ethylenically unsaturated monomers which include vinyl esters such as vinyl acetate, (meth)acrylic acid, (meth)acrylic acid esters, styrene, vinyl halides, 1,3-dienes, etc. wherein, the vinyl alcohol-based polymer comprises alpha-olefin units such as ethylene in an amount X of 1 to 20 mol. % and 1,2-glycol bonds in an amount of  $(1.7-X/40)$  mol % and is governed by a saponification degree of greater than 60 and more preferably greater than 75 mol. % and most preferably  $\geq 98$  mol. % (Abstract and paragraphs [0001], [0006]-[0013] and the Runs of Fujiwara et al and claims 1-5).

Therefore, one having ordinary skill in the art, at the time the invention was made, would have found it obvious to modify Weitzel et al by using the vinyl alcohol based polymer taught by Fujiwara et al in similar such emulsion polymerizations and with a reasonable expectation of enhancing the stability and water resistance of the emulsion. It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

As to the weight ratio of (A)/(B), weight percentage of (A) bound to (B) and average particle diameter (claim 1), one having ordinary skill in the art, at the time the invention was made, would have found it obvious to modify Weitzel et al/Fujiwara et al by optimizing each of the above limitations, such involving only routine experimentation, without undue experimentation and with a reasonable expectation of success, absent some evidence of unusual or unexpected results clearly commensurate in scope with the claims.

***Claim Rejections - 35 USC § 103***

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weitzel et al (US 20040097645) in combination with Harzschel et al (US 7,250,468).

Weitzel et al is as discussed supra and as applied to claims 1-6 & 8-10. Further, the disclosure of Weitzel et al differs basically from the claimed invention as per the non-express disclosure of an embodiment directed to a composition which further includes a polyvalent carboxylic acid. However, Harzschel et al teach polyvinyl alcohol-stabilized

aqueous polymer dispersions and water-redispersible powders therefrom, similar to the polyvinyl alcohol-stabilized aqueous polymer dispersions and water-redispersible powders therefrom taught by Weitzel et al wherein, the compositions of Harzschel et al, useful in construction adhesives, paints, etc., can contain additional additives which include 0.5 to 5 parts by weight of polyvalent carboxylic acids such as tartaric and citric acids (cols. 2-6 of Harzschel et al). Therefore, based on the same field of endeavor and related subject matter, it would have been obvious to the skilled artisan, at the time the invention was made, to modify Weitzel et al by adding the polyvalent carboxylic acids taught by Harzschel et al to the composition of Weitzel et al and with a reasonable expectation of success. Criticality for such, clearly commensurate in scope with the claims, not having been demonstrated on this record.

13. US Patents 4,123,405 to Oyamada et al and 6,262,167 to Weitzel et al are cited as of interest in teaching protective colloid-stabilized aqueous polymer dispersions and are considered merely cumulative to the prior art supra.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIE REDDICK whose telephone number is 2-5816. The examiner can normally be reached on 6:30 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID WU can be reached on 2-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MR/  
08/14/09

/David Wu/  
Supervisory Patent Examiner, Art Unit 1796